### INFORMATION TO OFFERORS OR QUOTERS SECTION A - COVER SHEET

1. SOLICITATION NUMBER 2. (X one)

a. SEALED BID

N00173-00-R-SE01

(3) Combined Small Business/Labor Area Concerns

b. NEGOTIATED (RFP)
c. NEGOTIATED (RFQ)

#### INSTRUCTIONS

NOTE THE AFFIRMATIVE ACTION REQUIREMENT OF THE EQUAL OPPORTUNITY CLAUSE WHICH MAY APPLY TO THE CONTRACT RESULTING FROM THIS SOLICITATION.

You are cautioned to note the "Certification of Non-Segregated Facilities" in the solicitation. Failure to agree to the certification will render your reply nonresponsive to the terms of solicitations involving awards of contracts exceeding \$25,000 which are not exempt from the provisions of the Equal Opportunity clause.

"Fill-ins" are provided on the face and reverse of Standard Form 18 and Parts I and IV of Standard Form 33, or other solicitation documents and Sections of Table of Contents in this solicitation and should be examined for applicability.

See the provision of this solicitation entitled either "Late Bids, Modifications of Bids or Withdrawal of Bids" or "Late Proposals, Modifications of Proposals and Withdrawals of Proposals."

When submitting your reply, the envelope used must be plainly marked with the Solicitation Number, as shown above and the date and local time set forth for bid opening or receipt of proposals in the solicitation document.

If NO RESPONSE is to be submitted, detach this sheet from the solicitation, complete the information requested on reverse, fold, affix postage, and mail. NO ENVELOPE IS NECESSARY.

Replies must set forth full, accurate, and complete information as required by this solicitation (including attachments). The penalty for making false statements is prescribed in 18 U.S.C. 1001.

3.	ISSUING	OFFICE (Co.	mplete maili	ng address,	including	ZIP	Code)
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Contracting Officer - Code 3235

Naval Research Laboratory - SSC

Department of the Navy

Stennis Space Center, MS 39529-5004

### 4. ITEMS TO BE PURCHASED (Brief description)

Research and Development Services in he area of Electro-Optical Technology: Devices and Sensor Signal Processing

### 5. PROCUREMENT INFORMATION (X and complete as applicable)

- a. THIS PROCUREMENT IS UNRESTRICTED
- b. THIS PROCUREMENT IS A 100 % SET-ASIDE FOR ONE OF THE FOLLOWING (X one). (See Section I of the Table of Contents in this solicitation for details of the set-aside.)

X (1) Small Business (2) Labor Surplus Area Concerns

6. ADDITIONAL INFORMATION

THE NAVAL RESEARCH LABORATORY CONTRACTING DIVISION ISSUES SOLICITATIONS AND AMENDMENTS TO SOLICITATIONS ELECTRONICALLY VIA THE INTERNET AT THE FOLLOWING WEBSITE:

http://heron.nrl.navy.mil/contracts/home.htm

ANY AMENDMENTS TO THIS SOLICITATION WILL BE POSTED AT THE WEBSITE REFERENCED ABOVE. AMENDMENTS WILL NOT BE DISTRIBUTED BY ANY OTHER MEANS. IT IS THE RESPONSIBILITY OF POTENTIAL OFFERORS TO PERIODICALLY REVIEW THE WEBSITE FOR AMMENDMENTS TO THIS SOLICITATION.

7. POINT OF CONTACT FOR INFORMATION

a. NAME (Last, First, Middle Initial)

SOGARD, ERIC, J.

c. TELEPHONE NUMBER (Include Area Code and Extension) (NO COLLECT CALLS)

228-688-5784

b. ADDRESS (Include Zip Code)

Contracting Officer (Code 3235)

Naval research Laboratory - SSC

Stennis Space Center, MS 39529-5004

**DD FORM 1707, MAR 90** 

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c. ACTION OFFICER						
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### PART I - THE SCHEDULE SECTION B SUPPLIES OR SERVICES AND PRICES/COSTS

### **B-1** SUPPLIES/SERVICES AND COSTS

ITEM NUMBER	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	ESTIMATED COST PLUS FIXED FEE
0001	The Contractor shall provide the necessary personnel and facilities to accomplish the work described in Section C.	\$	\$	\$
0002	Software, data and reports in accordance with Exhibit A (DD 1423)	* NSP	* NSP	* NSP
TOTAL EST	Γ. COST PLUS FIXED FEE	\$	\$	\$

<sup>\*</sup> Not Separately Priced

### SECTION C DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK

### **C-1** STATEMENT OF WORK

The work and services to be performed hereunder shall be subject to the requirements and standards contained in Attachment (1), Statement of Work, with Exhibit A, Contract Data Requirements List, and all other Attachments cited in Section J, which are incorporated by reference into Section C.

### **C-2** REQUIREMENTS FOR ON-SITE CONTRACTORS

For those portions of the work under this contract performed at any NRL site, the contractor shall comply with the Requirements for On-Site Contractors dated 28 July 1999 which are hereby incorporated by reference. The full text is available at <a href="http://heron.nrl.navy.mil/contracts/home.htm">http://heron.nrl.navy.mil/contracts/home.htm</a>.

### SECTION D PACKAGING AND MARKING

### **D-1** PACKAGING AND MARKING

Preservation, packaging, packing and marking of all deliverable contract line items must conform to normal commercial packing standards to assure safe delivery at destination.

### SECTION E INSPECTION AND ACCEPTANCE

### E-1 INSPECTION AND ACCEPTANCE CLAUSES INCORPORATED BY REFERENCE

### FAR CLAUSE TITLE

52.246-9 - Inspection Of Research And Development (Short Form) (APR 1984)

### **DFARS CLAUSE TITLE**

252.246-7000 - Material Inspection And Receiving Report (DEC 1991)

### E-2 INSPECTION AND ACCEPTANCE

Inspection and acceptance of the final delivery will be accomplished by the Technical Manager (TM) or Contracting Officer Representative (COR) designated in Section G of this contract. Inspection and acceptance will be performed at the Naval Research Laboratory, Washington DC 20375-5320.

### SECTION F DELIVERIES OR PERFORMANCE

### F-1 DELIVERIES OR PERFORMANCE CLAUSES INCORPORATED BY REFERENCE:

### FAR CLAUSE TITLE

52.242-15 - Stop-Work Order (AUG 1989) - Alternate I (APR 1984)

52.247-34 - F.O.B. Destination (NOV 1991)

### F-2 PERIOD AND PLACE OF PERFORMANCE

- (a) The term of this contract is from the date of contract award through a period of 60 months.
- (b) The principal place of performance of this contract shall be \*

(\* To be completed at time of award)

### SECTION G CONTRACT ADMINISTRATION DATA

#### **G-1** PROCURING OFFICE REPRESENTATIVE

In order to expedite administration of the contract, the Administrative Contracting Officer (ACO) will direct inquiries to the appropriate office listed below. Please do not direct routine inquiries to the person listed in Item 20A on Standard Form 26.

Contract Matters- *
Security Matters- *
Safety Matters- *
Patent Matters- *
Release of Data- *

The ACO will forward invention disclosures and reports directly to the Associate Counsel for Patents, Code 1008.2, Naval Research Laboratory, Washington DC 20375-5320. The Associate Counsel for Patents will return the reports along with a recommendation to the Administrative Contracting Officer. The Associate Counsel for Patents will represent the Contracting Officer with regard to invention reporting matters arising under this contract.

(\* To be completed at time of award)

### **G-2** CONTRACTING OFFICER'S REPRESENTATIVE (COR) - FUNCTIONS AND LIMITATIONS

\* is hereby designated the cognizant COR who will represent the Contracting Officer in the administration of technical details within the scope of this contract and inspection and acceptance. The COR is not otherwise authorized to make any representations or commitments of any kind on behalf of the Contracting Officer or the Government. The COR does not have the authority to alter the Contractor's obligations or change the specifications in the contract. If, as a result of technical discussions, it is desirable to alter contract obligations or statements of work, a modification must be issued in writing and signed by the Contracting Officer. The COR is responsible for reviewing the bills and charges submitted by the Contractor and informing the ACO of areas where exceptions are to be taken.

(\* To be completed at time of award)

### **G-3** TECHNICAL DIRECTION MEMORANDUM (TDM)

- (a) For the purposes of this clause, technical direction includes the following:
  - (1) Direction to the Contractor which shifts work emphasis between work areas or tasks, requires pursuit of certain lines of inquiry, fills in details or otherwise describes work which will accomplish the objectives described in the statement of work;
  - (2) Guidelines to the Contractor which assist in interpretation of drawings, specifications or technical portions of work description.
- (b) Technical instructions must be within the scope of work stated in the contract. Technical instructions may not be used to:
  - (1) Assign additional work under the contract:
  - (2) Direct a change as defined in the contract clause entitled "Changes";
  - (3) Increase or decrease the estimated contract cost, the fixed fee, or the time required for contract performance; or
  - (4) Change any of the terms, conditions or specifications of the contract
- (c) The TDM shall be written by the Contracting Officer's Representative (COR), with the original given to the Contractor and a copy retained in the CORs file. Technical direction may be issued orally only in emergency situations. If technical direction is issued orally, a TDM must follow within two (2) working days from the date of the oral direction. Amendments, corrections, or changes to TDMs shall also be in written format and shall include all the information set forth in paragraph (e) below.
- (d) A TDM shall be considered issued when the Government deposits it in the mail, or if transmitted by other means, when it is physically delivered to the contractor.
- (e) TDMs shall include, but not be limited to, the following information:
  - (1) Date of TDM,
  - (2) Contract Number,
  - (3) Reference to the relevant portion or item in the Statement of Work,
  - (4) The specific technical direction or clarification, and
  - (5) The signature of the COR.
- (f) CORs shall retain all files containing TDMs for a period of two (2) years after the final contract completion date.
- (g) The only individual authorized in any way to amend or modify any of the terms of this contract shall be the Contracting Officer. When, in the opinion of the Contractor, any technical direction calls for effort outside the scope of the contract or inconsistent with this special provision, the Contractor shall notify the Contracting Officer in writing within ten (10) working days after its receipt.

### **G-4** CONTRACTOR-ACQUIRED PROPERTY

(a) The contractor is authorized to acquire the following items of facilities which are needed to accomplish this contract.

Items to be Acquired

**Estimated Cost** 

\*

(\*this provision will be included and completed at time of award, if applicable)

- (b) This authorization does not constitute any consent required pursuant to the contract clause entitled "Subcontracts" (FAR 52.244-2). Advance notification or requests for consent pursuant to that clause shall be directed to the administrative contracting officer (ACO).
- (c) Pursuant to the contract clause entitled "Government Property (Cost-Reimbursement, Time-and-Material, or Labor-Hour Contracts)" (FAR 52.245-5), title to the property shall vest in the Government.
- (d) Prior to acquisition of any item of Industrial Plant Equipment, the Contractor must comply with the requirements of Department of Defense Federal Acquisition Regulation Supplement (DFARS 245.302-1(b)(1)(A). (See DFARS 245.301 for definition of "Industrial Plant Equipment.")

### **G-5** SUBCONTRACTORS/CONSULTANTS

- (a) Advance notification or requests for consent pursuant to the contract clause entitled "Subcontracts" (FAR 52.244-2) shall be directed to the cognizant administrative contracting officer (ACO).
- (b) The following subcontractors/consultants have been identified in the Contractor's proposal as necessary for performance of this contract:

Subcontractor/Consultant Name

**Estimated Cost** 

(Paragraph (b) will be included and filled in at time of award if subcontractor/consultants are proposed by the successful offeror)

#### G-6 NAPS 5252.232-9001 - SUBMISSION OF INVOICES (COST-REIMBURSEMENT, TIME-AND-MATERIALS, LABOR-HOUR, OR FIXED PRICE INCENTIVE (JUL 1992)

- "Invoice" as used in this clause includes contractor requests for interim payments using public vouchers (SF 1034) but does not include contractor requests for progress payments under fixed price incentive contracts.
- The Contractor shall submit invoices and any necessary supporting documentation, in an original and 4 copies, to the contract auditor at the following address:

(*To be completed at time of award*)

unless delivery orders are applicable, in which case invoices will be segregated by individual order and submitted to the address specified in the order. In addition, an information copy shall be submitted to [See Section G for designated COR]. Following verification, the contract auditor will forward the invoice to the designated payment office for payment in the amount determined to be owing, in accordance with the applicable payment (and fee) clause(s) of this contract.

- Invoices requesting interim payments shall be submitted no more than once every two weeks, unless another time period is specified in the Payments clause of this contract. For indefinite delivery type contracts, interim payment invoices shall be submitted no more than once every two weeks for each delivery orders. There shall be a lapse of no more than 30 calendar days between performance and submission of an interim payment invoice.
- In addition to the information identified in the Prompt Payment clause herein, each invoice shall contain the following information, as applicable:
  - (1) Contract line item number (CLIN)
  - (2) Subline item number (SLIN)
  - (3) Accounting Classification Reference Number(ACRN)
  - (4) Payment terms
  - (5) Procuring activity
  - (6) Date supplies provided or services performed
  - (7) Costs incurred and allowable under the contract
  - (8) Vessel (e.g., ship, submarine or other craft) or system for which supply/service is provided
- A DD Form 250, "Material Inspection and Receiving Report", is required with each invoice submittal. X is required only with the final invoice. is not required. A Certificate of Performance
- (f)
  - shall be provided with each invoice submittal.
  - X is not required.
- The Contractor's final invoice shall be identified as such, and shall list all other invoices (if any) previously tendered under this contract.
- Cost of performance shall be segregated, accumulated and invoiced to the appropriate ACRN categories to the extent possible. When such segregation of costs by ACRN is not possible for invoices submitted with CLIN/SLINS with more than one ACRN, an allocation ratio shall be established in the same ratio as the obligations cited in the accounting data so that costs are allocated on a proportional basis.

### **G-7** INCREMENTAL FUNDING

Pursuant to the Limitation of Funds clause (FAR 52.232-22), the total amount allotted to this contract is \$\* and it is estimated that this amount is sufficient for contract performance through \*.

(\*this provision will be included and completed at time of award, if applicable)

### **G-8** PAYMENT INSTRUCTIONS FOR MULTIPLE ACCOUNTING CLASSIFICATION CITATIONS (COST-REIMBURSEMENT)

The purpose of these instructions is to permit the paying office to charge the accounting classification citations in the contract in a manner that reflects the performance of the contract. These instructions do not create any obligation on the part of the Government or the contractor nor do they in any way alter any obligation created by any other provision of the contract. Invoices should be paid from available ACRNs in the following order:

- (a) ACRNs cited on the contractor's invoice.
- (b) On a proportional basis from any ACRNs assigned to funds which will cancel at the end of the current fiscal year.
- (c) The ACRN assigned to the following line of accounting: 97X4930.NH4A 000 77777 0 000173 2F 000000 N00173Z45000.
- (d) If funds appropriated in more than one fiscal year are allotted to the contract, the ACRN assigned to the oldest allotment of funds.
- (e) On a proportional basis from all ACRNs assigned to allotments of funds appropriated in a single fiscal year.

### SECTION H SPECIAL CONTRACT REQUIREMENTS

#### H-1 TYPE OF CONTRACT

This is a \*

(\*To be completed at time of award)

### H-2 ONR 5252.237-9705 - KEY PERSONNEL (DEC 88)

- (a) The Contractor agrees to assign to the contract tasks those persons whose resumes were submitted with its proposal and who are necessary to fulfill the requirements of the contract as "key personnel". No substitutions may be made except in accordance with this clause.
- (b) The Contractor understands that during the first ninety (90) days of the contract performance period, no personnel substitutions will be permitted unless these substitutions are unavoidable because of the incumbent's sudden illness, death or termination of employment. In any of these events, the Contractor shall promptly notify the Contracting Officer and provide the information described in paragraph (c) below. After the initial ninety (90) day period the Contractor must submit to the Contracting Officer all proposed substitutions, in writing, at least fifteen (15) days in advance (thirty (30) days if security clearance must be obtained) of any proposed substitution and provide the information required by paragraph (c) below.
- (c) Any request for substitution must include a detailed explanation of the circumstances necessitating the proposed substitution, a resume for the proposed substitute, and any other information requested by the Contracting Officer. Any proposed substitute must have qualifications equal to or superior to the qualifications of the incumbent. The Contracting Officer or his/her authorized representative will evaluate such requests and promptly notify the Contractor of his/her approval or disapproval thereof.
- (d) In the event that any of the identified key personnel cease to perform under the contract and the substitute is disapproved, the contract may be immediately terminated in accordance with the Termination clause of the contract.

The following are identified as key personnel: \*

(\*To be completed at time of award)

### H-3 ONR 5252.216-9706 - LEVEL OF EFFORT (DEC 88)

- (a) The Contractor agrees to provide the total level of effort specified in the next sentence in performance of the work described in this contract. The total level of effort for performance of this contract shall be 60,000 total hours of direct labor, including subcontractor direct labor for those subcontractors specifically identified in the Contractor's proposal as having hours included in the proposed level of effort. A breakdown of labor categories and hours is set forth in paragraph (k) below.
- (b) The level of effort for this contract shall be expended at an average rate of 1000 hours per month. It is understood and agreed that the rate of hours per month may fluctuate in pursuit of the technical objective, provided such fluctuation does not result in the use of the total hours of effort prior to the expiration of the term of the contract.
- (c) The Contractor is required to notify the Contracting Officer when any of the following situations occur, or are anticipated to occur: If during any three consecutive months the monthly average is exceeded by 25% or, if at any time it is forecast that during the last three months of the contract less than 50% of the monthly average will be used during any given month; or, when 85% of the total level of effort has been expended.

- (d) If, during the term of the contract, the Contractor finds it necessary to accelerate the expenditure of direct labor to such an extent that the total hours of effort specified would be used prior to the expiration of the term, the Contractor shall notify the Contracting Officer in writing, setting forth the acceleration required, the probable benefits which would result, and an offer to undertake the acceleration at no increase in the estimated cost or fixed fee together with an offer setting forth a proposed level of effort, cost breakdown, and proposed fixed fee for continuation of the work until expiration of the term hereof. The offer shall provide that the work proposed will be subject to the terms and conditions of this contract and any additions or changes required by then current law, regulations, or directives, and that the offer, with a written notice of acceptance by the Contracting Officer, shall constitute a binding contract. The Contractor shall not accelerate any effort until receipt of such written approval by the Contracting Officer. Any agreement to accelerate will be formalized by contract modification.
- (e) The Contracting Officer may, by written order, direct the Contractor to accelerate the expenditure of direct labor such that the total hours of effort specified in paragraph (a) above would be used prior to the expiration of the term. This order shall specify the acceleration required and the resulting revised term. The Contractor shall acknowledge this order within five days of receipt.
- (f) If the total level of effort specified in paragraph (a) above is not provided by the Contractor during the term of this contract, the Contracting Officer shall either (i) reduce the fixed fee of this contract as follows:

Fee Reduction = Fixed Fee X (<u>Required LOE Hours - Expended LOE Hours</u>)

### Required LOE Hours

- or (ii) subject to the provisions of the clause of this contract entitled "Limitation of Cost," require the Contractor to continue to perform the work until the total number of hours of direct labor specified in paragraph (a) shall have been expended, at no increase in the fixed fee of this contract.
- (g) In the event the government fails to fully fund the contract in a timely manner, the term of the contract may be extended accordingly with no change to cost or fee. If the government fails to fully fund the contract, the fee will be adjusted in direct proportion to that effort which was performed.
- (h) Notwithstanding any of the provisions in the above paragraphs, the Contractor may furnish hours up to five percent in excess of the total hours specified in paragraph (a) above, provided that the additional effort is furnished within the term hereof, and provided further that no increase in the estimated cost or fixed fee is required, and no adjustment in the fixed fee shall be made provided that the Contractor has delivered at least 95% of the level of effort required in paragraph (a) above.
- (i) It is understood that the mix of labor categories provided by the Contractor under the contract, as well as the distribution of effort among those categories, may vary considerably from the initial mix and distribution of effort which was estimated by the government or proposed by the Contractor.
- (j) Nothing herein shall be construed to alter or waive any of the rights or obligations of either party pursuant to the Clause entitled "Limitation of Costs" or "Limitation of Funds," either of which clauses as incorporated herein applies to this contract.

(k) The anticipated annual breakdown by labor category of the total level of effort is as follows:

<u>Labor Category</u>	<u>Hours</u>
Senior Program Manager	600
Senior Program Analyst	1,900
Physicist/Chemist, optical materials	1,900
Optical Physicist	1,900
Physicist, laser devices	1,900
Electrical Engineer/Computer Scientist	1,900
Electrical Engineer/Physicist, signal processing	1,900

### H-4 ONR 5252.235-9714 - REPORT PREPARATION (FEB 97)

Scientific or technical reports prepared by the Contractor and deliverable under the terms of this contract will be prepared in accordance with format requirements contained in ANSI/NISO Z39.18-1995, "Scientific and Technical Reports: Elements, Organization, and Design. "[NOTE: ANSI Z39.18 may be obtained from NISO Press Fulfillment Center, P. O. Box 338, Oxon Hill, MD. 20750-0338.Telephone 1-800-282-6476]

#### H-5 ON-SITE USE OF GOVERNMENT PROPERTY

It is anticipated that Government property will be used by the contractor's personnel in the performance of that portion of the contract performed on-site at the U.S. Naval Research Laboratory (NRL) including any of its field sites. Such use will be on a rent free basis and all such property shall be considered to remain in the possession and control of the NRL for property responsibility and accountability purposes.

#### H-6 YEAR 2000 COMPLIANT INFORMATION TECHNOLOGY

This requirement applies to information technology (IT) that processes date-related information. All such IT delivered under this contract shall be Year 2000 compliant as defined at FAR 39.002.

### H-7 REPRESENTATIONS AND CERTIFICATIONS

The Contractor's completed Representations, Certifications, and Other Statements of Offerors or Respondents is incorporated herein by reference in any resultant award.

# PART II - CONTRACT CLAUSES SECTION I CONTRACT CLAUSES

### I-1 52.252-2 - CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available.

Also, the full text of a clause may be accessed electronically at this/these address(es):

### http://www.arnet.gov/far http://heron.nrl.navy.mil/contracts/home.htm

### a. FEDERAL ACQUISITION REGULATION CLAUSES

FAR CLAUS	SE	TITLE
52.202-1	-	Definitions (OCT 1995)
52.203-3	-	Gratuities (APR 1984)
52.203-5	-	Covenant Against Contingent Fees (APR 1984)
52.203-6	-	Restrictions On Subcontractor Sales To The Government (JUL 1995)
52.203-7	-	Anti-Kickback Procedures (JUL 1995)
52-203-8	-	Cancellation, Rescission, And Recovery Of Funds For Illegal Or Improper Activity (JAN 1997)
52.203-10	_	Price Or Fee Adjustment For Illegal Or Improper Activity (JAN 1997)
52.203-12	_	Limitation On Payments To Influence Certain Federal Transactions (JUN 1997)
52.204-2	_	Security Requirements (AUG 1996)
52.204-4	_	Printing/Copying Double-Sided On Recycled Paper (JUN 1996)
52.209-6	_	Protecting The Government's Interest When Subcontracting With Contractors Debarred,
		Suspended, Or Proposed For Debarment (JUL 1995)
52.211-15	_	Defense Priority and Allocation Requirements (SEP 1990)
52.215-2	_	Audit And Records-Negotiation (JUNE 1999)
52.215-8	_	Order of Precedence - Uniform Contract Format (OCT 1997)
52.215-14	_	Integrity of Unit Prices (OCT 1997)
52.215-17	_	Waiver of Facilities Capital Cost of Money (OCT 1997)
		(will be included if the successful offeror does not propose facilities capital cost of money)
52.215-21	_	Requirements for Cost or Pricing Data or Information Other Than Cost or Pricing Data -
		Modifications (OCT 1997)
52.216-7	-	Allowable Cost And Payment (APR 1998)
52.216-8	-	Fixed-Fee (MAR 1997)
52.219-6	-	Notice Of Total Small-Business Set-Aside (JUL 1996)
52.219-8	-	Utilization Of Small Business Concerns (OCT 1999)
52.219-14	-	Limitations On Subcontracting (DEC 1996)
52.219-16	-	Liquidated Damages-Subcontracting Plan (JAN 1999)
52.222-1	-	Notice To The Government Of Labor Disputes (FEB 1997)
52.222-2	-	Payment For Overtime Premiums (JUL 1990) - The Use Of Overtime Is Authorized Under
		This Contract If The Overtime Premium Does Not Exceed "0"
52.222-3	-	Convict Labor (AUG 1996)
52.222-20	-	Walsh-Healey Public Contracts Act (DEC 1996)
52.222-21	-	Prohibition of Segregated Facilities (FEB 1999)
52.222-26	-	Equal Opportunity (FEB 1999)
52.222-35	-	Affirmative Action For Disabled Veterans And Veterans Of The Vietnam Era (APR 1998)
52.222-36	-	Affirmative Action For Workers With Disabilities (JUN 1998)
52.222-37	-	Employment Reports On Disabled Veterans And Veterans Of The Vietnam Era (APR 1998)
52.223-2	-	Clean Air And Water (APR 1984)
52.223-3	-	Hazardous Material Identification And Material Safety Data (JAN 1997)
52.223-5	-	Pollution Prevention and Right-To-Know Information (APR 1998)
52.223-6	-	Drug-Free Workplace (JAN 1997)

50 000 14		T ' C ' 1 D 1 D 1 (OCT 100C)
52.223-14	-	Toxic Chemical Release Reporting (OCT 1996)
52.225-11	-	Restrictions On Certain Foreign Purchases (AUG 1998)
52.226-1	-	Utilization Of Indian Organizations And Indian-Owned Economic Enterprises (MAY 1999)
52.227-1	-	Authorization And Consent (JUL 1995)- Alternate I (APR 1984)
52.227-2	-	Notice And Assistance Regarding Patent And Copyright Infringement (AUG 1996)
52.227-10	-	Filing of Patent Application- Classified Subject Matter (APR 1984)
52.227-11	_	Patent Rights - Retention By The Contractor (Short Form) (JUN 1997)
		(will be included if the successful offeror is a small business or a non-profit organization)
52.228-7	_	Insurance - Liability To Third Persons (MAR 1996)
52.232-9	_	Limitation On Withholding Of Payments (APR 1984)
52.232-17	_	Interest (JUN 1996)
52.232-17		Availability Of Funds (APR 1984)
	-	
52.232-20	-	Limitation Of Cost (APR 1984) (Applicable when the contract or task order is fully funded)
52.232-22	-	Limitation Of Funds (APR 1984) (Applicable when the contract or task order is not fully
<b>7</b> 2 222 22		funded)
52.232-23	-	Assignment Of Claims (JAN 1986) Alternate I (APR 1984)
52.232-25	-	Prompt Payment (JUN 1997)
52.232-33	-	Payment By Electronic Funds Transfer-Central Contractor Registration (MAY 1999)
52.233-1	-	Disputes (DEC 1998)
52.233-3	-	Protest After Award (AUG 1996) - Alternate I (JUN 1985)
52.237-2	-	Protection Of Government Buildings, Equipment And Vegetation (APR 1984)
52.237-3	-	Continuity Of Services (JAN 1991)
52.237-10	-	Identification of Uncompensated Overtime (OCT 1997)
52.242-1	-	Notice Of Intent To Disallow Costs (APR 1984)
52.242-3	-	Penalties For Unallowable Costs (OCT 1995)
52.242-4	_	Certification of Final Indirect Costs (JAN 1997)
52.242-13	_	Bankruptcy (JUL 1995)
52.243-2	_	Changes - Cost-Reimbursement (AUG 1987) - Alternate V (APR 1984)
52.243-6	_	Change Order Accounting (APR 1984)
52.243-7	_	Notification Of Changes (APR 1984) fill in 30
52.244-2	_	Subcontracts (AUG 1998) - Alternate I (AUG 1998)
52.244-5	_	Competition In Subcontracting (DEC 1996)
52.244-6	_	Subcontracts for Commercial Items and Commercial Components (OCT 1998)
52.245-5	_	Government Property (Cost-Reimbursement, Time-And-Material, Or Labor-Hour Contracts)
32.2 <del>-1</del> 3-3	_	(JAN 1986) (DEVIATION)
52.245-9		Use And Charges (APR 1984) (DEVIATION)
52.245-18	-	
	-	Special Test Equipment (FEB 1993)
52.245-19	-	Government Property Furnished "As-Is" (APR 1984)
52.246-23	-	Limitation Of Liability (FEB 1997)
52.246-25	-	Limitation Of Liability - Services (FEB 1997)
52.247-1	-	Commercial Bill Of Lading Notations (APR 1984)
52.247-63	-	Preference For U. S. Flag Carriers (JAN 1997)
52.249-6	-	Termination (Cost-Reimbursement) (SEP 1996)
52.249-14	-	Excusable Delays (APR 1984)
52.251-1	-	Government Supply Sources (APR 1984)
52.252-6	-	Authorized Deviations in Clauses (APR 1984)( fill in Defense Federal Acquisition
		Regulation Supplement (48 CFR Chapter 2))

### 52.253-1 - Computer Generated Forms (JAN 1991)

### b. DEPARTMENT OF DEFENSE FEDERAL ACQUISITION REGULATION CLAUSES

<b>DFARS CLAUSE</b>		TITLE
252.201-7000	-	Contracting Officer's Representative (DEC 1991)
252.203-7001	-	Prohibition On Persons Convicted Of Fraud Or Other Defense Contract Related Felonies
		(MAR 1999)
252.203-7002	-	Display Of DoD Hotline Poster (DEC 1991)
252.204-7000	-	Disclosure Of Information (DEC 1991)
252.204-7003	-	Control Of Government Personnel Work Product (APR 1992)
252.204-7004	-	Required Central Contractor Registration (MAR 1998)
252.204-7005	-	Oral Attestation Of Security Responsibilities (AUG 1999)
252.205-7000	-	Provision Of Information To Cooperative Agreement Holders (DEC 1991)
252.209-7000	-	Acquisition From Subcontractors Subject To On-Site Inspection Under The Intermediate-
		Range Nuclear Forces (INF) Treaty (NOV 1995)
252.209-7004	-	Subcontracting With Firms That Are Owned Or Controlled By The Government Of A
		Terrorist Country (MAR 1998)
252.219-7003	-	Small Business And Small Disadvantaged Business Subcontracting Plan (DoD Contracts)
		(APR 1996)
252.219-7004	-	Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan
		(Test Program) (JUN 1997)
252.223-7001	-	Hazard Warning Labels (DEC 1991)
252.223-7004	-	Drug-Free Work Force (SEP 1988)
252.223-7006	-	Prohibition On Storage And Disposal Of Toxic And Hazardous Materials (APR 1993)
252.225-7001	-	Buy American Act And Balance Of Payments Program (MAR 1998)
252.225-7002	-	Qualifying Country Sources As Subcontractors (DEC 1991)
252.225-7009	-	Duty Free Entry- Qualifying Country Supplies (End Products and Components) (MAR
		1998)
252.225-7010	-	Duty Free Entry - Additional Provisions (MAR 1998)
252.225-7012	-	Preference For Certain Domestic Commodities (MAY 1999)
252.225-7026	-	Reporting Of Contract Performance Outside The United States (MAR 1998)
252.225-7031	-	Secondary Arab Boycott Of Israel (JUN 1992)
252.225-7043	-	Antiterrorism/Force Protection Policy For Defense Contractors Outside The United States
		(JUN 1998) (fill in : Naval Criminal Investigative Service (NCIS), Code 24, telephone,
		DSN 228-9113 or commercial (202)433-9113)
252.226-7000	-	Notice Of Historically Black College Or University And Minority Institutions Set Aside
		(APR 1994)
252.227-7000	-	Non Estoppel (OCT 1966)
252.227-7001	-	Release Of Past Infringement (AUG 1984)
252.227-7013	-	Rights In Technical Data Noncommercial Items (NOV 1995)
252.227-7013	-	Rights In Technical Data Noncommercial Items (NOV 1995) - Alternate I (JUN 1995)
252.227-7014	-	Rights In Noncommercial Computer Software And Noncommercial Computer Software
		Documentation (JUN 1995)
252.227-7014	-	Rights In Noncommercial Computer Software And Noncommercial Computer Software
		Documentation (JUN 1995) - Alternate I (JUN 1995)

252.227-7016	-	Rights In Bids or Proposal Information (JUN 1995)
252.227-7019	-	Validation Of Asserted RestrictionsComputer Software (JUN 1995)
252.227-7025	-	Limitations On The Use Or Disclosure Of Government-Furnished Information Marked
		With Restrictive Legends (JUN 1995)
252.227-7026	-	Deferred Delivery Of Technical Data Or Computer Software (APR 1988)
252.227-7027	-	Deferred Ordering Of Technical Data Or Computer Software (APR 1988)
252.227-7030	-	Technical DataWithholding Of Payment (OCT 1988)
252.227-7034	_	PatentsSubcontracts (APR 1984)
252.227-7036	_	Declaration Of Technical Data Conformity (JAN 1997)
252.227-7037	-	Validation Of Restrictive Markings On Technical Data (SEP 1999)
252.227-7039	-	PatentsReporting of Subject Inventions (APR 1990)
252.235-7010	-	Acknowledgment of Support and Disclaimer (MAY 1995)
252.235-7011	-	Final Scientific Or Technical Report (SEP 1999)
252.242-7000	-	Post Award Conference (DEC 1991)
252.243-7002	-	Requests for Equitable Adjustment (MAR 1998)
252.245-7001	-	Reports of Government Property (MAY 1994)
252.246-7001	-	Warranty Of Data (DEC 1991)
252.247-7023	-	Transportation Of Supplies By Sea (NOV 1995)
252.247-7024	-	Notification Of Transportation Of Supplies By Sea (NOV 1995)
		(will be included if the successful offeror made a negative response to the inquiry at
		DFARS 252.247-7022)
252.251-7000	-	Ordering From Government Supply Sources (MAY 1995)
<b>I-2</b> FAR 52.	223-	11 - OZONE-DEPLETING SUBSTANCES (JUN 1996)

### (a) Definitions.

"Ozone-depleting substance", as used in this clause, means any substance designated as Class I by the Environmental Protection Agency (EPA) (40 CFR Part 82), including but not limited to chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform; or any substance designated as Class II by EPA (40 CFR

Part 82), including but not limited to hydrochlorofluorocarbons.
(b) The Contractor shall label products which contain or are manufactured with ozone-depleting substances in the manner and to the extent required by 42 U.S.C. 7671j (b), (c), and (d) and 40 CFR Part 82 Subpart E, as follows:
"WARNING: Contains (or manufactured with, if applicable) * , a substance(s) which harm(s) public health and environment by destroying ozone in the upper atmosphere."
* The Contractor shall insert the name of the substance(s).

#### **I-3** DFARS 252.225-7008 - SUPPLIES TO BE ACCORDED DUTY- FREE ENTRY (MAR 1998)

In accordance with paragraph (b) of the Duty-Free Entry clause of this contract, in addition to duty-free entry for all qualifying country supplies (end products and components) and all eligible end products subject to applicable trade agreements (if this contract contains the Buy American Act - Trade Agreements - Balance of Payments

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Program clause or the Buy American Act - North American Free Trade Agreement Implementation Act -
Balance of Payments Program clause), the following foreign end products that are neither qualifying country
end products nor eligible end products under a trade agreement, and the following nonqualifying country
components, are accorded duty free entry.

# PART III - LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS SECTION J LIST OF ATTACHMENTS

- **J-1** Attachment (1) Statement Of Work 7 Pages.
- **J-2** Attachment (2) Personnel Qualifications 5 pages
- **J-3** Exhibit A DD 1423, Contract Data Requirement List, 3 pages
- **J-4** Attachment (3) DD Form 254, Contract Security Classification Specification, Ser 054-99 Dated 990927.
- **J-5** Attachment (\*) Accounting and Appropriation Data- 1 page.

(\* To be included at time of award)

# PART IV - REPRESENTATIONS AND INSTRUCTIONS SECTION - K REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS OR RESPONDENTS

### K-1 Representations, Certifications, and Other Statements of Offerors or Respondents

Each Offeror must submit a completed Representations, Certifications, and Other Statements Of Offerors or Respondents with its proposal which is available electronically in full text at <a href="http://heron.nrl.navy.mil/contracts/reps&certs.htm">http://heron.nrl.navy.mil/contracts/reps&certs.htm</a>

### K-2 FILL IN FOR FAR 52.219-1 - SMALL BUSINESS PROGRAM REPRESENTATIONS (MAY 1999)

The fill in information is as follows:

The standard industrial classification (SIC) code for this acquisition is <u>8731</u>. The small business size standard is <u>500</u> employees.

# SECTION L INSTRUCTIONS CONDITIONS AND NOTICES TO OFFERORS OR RESPONDENTS

### L-1 52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these address(es):

http://www.arnet.gov/far

http://heron.nrl.navy.mil/contracts/home.htm

FAR CLAUSE TITLI	Ξ
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	TITEL
-	Data Universal Numbering System (DUNS) Number (JUNE 1999)
-	Availability of Specifications Listed in the DOD Index of Specifications and Standards
	(DODISS) and Descriptions Listed in the Acquisition Management Systems and Data
	Requirements Control List, DOD 5010.12-L (AUG 1998)
-	Submission Of Offers In The English Language (APR 1991)
-	Submission Of Offers In U.S. Currency (APR 1991)
-	Instructions to Offerors- Competitive Acquisition (NOV 1999)
-	Facilities Capital Cost Of Money (OCT 1997)
-	Site Visit (APR 1984)
-	Authorized Deviations in Provisions (APR 1984)
	- Commercial And Government Entity (CAGE) Code Reporting (AUG 1999)
	- Substitutions For Military Or Federal Specifications And Standards (MAR 1999)
	(Offeror insert information for each SPI process)
	SPI Process:
	Facility:
	Military or Federal Specification or Standard:
	Affected Contract Line Item Number, Subline Item Number, Component, or Element:

### L-2 FAR 52.211-14 - NOTICE OF PRIORITY RATING FOR NATIONAL DEFENSE USE (SEP 1990)

Any contract awarded as a result of this solicitation will be a DX rated order; DO rated order certified for national use under the Defense Priorities and Allocations system (DPAS) (15 CFR 700), and the Contractor will be required to follow all of the requirements of this regulation.

### L-3 FAR 52.215-20 REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA (OCT 1997)ALTERNATE IV (OCT 1997)

- (a) Submission of cost or pricing data is not required.
- (b) Provide information described Section L-12, Volume II Business Proposal.

### **L-4** FAR 52.216-1 - TYPE OF CONTRACT (APR 1984)

The Government contemplates award of a Cost Plus Fixed Fee - Term contract resulting from this solicitation.

### **L-5** FAR 52.233-2 - SERVICE OF PROTEST (AUG 1996)

- (a) Protests, as defined in Section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO) shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from the Control Desk, Code 3200, Bldg. 222, Rm. 115, Naval Research Laboratory, 4555 Overlook Ave., S.W., Washington DC 20375-5326.
- (b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

### L-6 DFARS 252.227-7017 - IDENTIFICATION AND ASSERTION OF USE, RELEASE, OR DISCLOSURE RESTRICTIONS (JUN 1995)

- (a) The terms used in this provision are defined in following clause or clauses contained in this solicitation--
  - (1) If a successful offeror will be required to deliver technical data, the Rights in Technical Data-Noncommercial Items clause, or, if this solicitation contemplates a contract under the Small Business Innovative Research Program, the Rights in Noncommercial Technical Data and Computer Software--Small Business Innovative Research (SBIR) Program clause.
  - (2) If a successful offeror will not be required to deliver technical data, the Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation clause, or, if this solicitation contemplates a contract under the Small Business Innovative Research Program, the Rights in Noncommercial Technical Data and Computer Software--Small Business Innovative Research (SBIR) Program clause.
- (b) The identification and assertion requirements in this provision apply only to technical data, including computer software documents, or computer software to be delivered with other than unlimited rights. For contracts to be awarded under the Small Business Innovative Research Program, the notification requirements do not apply to technical data or computer software that will be generated under the resulting contract. Notification and identification is not required for restrictions based solely on copyright.
- (c) Offers submitted in response to this solicitation shall identify, to the extent known at the time an offer is submitted to the Government, the technical data or computer software that the Offeror, its subcontractors or suppliers, or potential subcontractors or suppliers, assert should be furnished to the Government with restrictions on use, release, or disclosure.
- (d) The Offeror's assertions, including the assertions of its subcontractors or suppliers or potential subcontractors or suppliers shall be submitted as an attachment to its offer in the following format, dated and signed by an official authorized to contractually obligate the Offeror:

  Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data or Computer Software.

The Offeror asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following technical data or computer software should be restricted:

Technical Data or	
Computer Software	
to be Furnished	
With Restrictions*	

T--1--1-D-4---

	Asserted	Name of Person
Basis for	Rights	Asserting
Assertion**	Category***	Restrictions****

(LIDI) (LIDI) (LIDI)	(LIST)*****.	(LIST)	(LIST)	(LIST
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- \* For technical data (other than computer software documentation) pertaining to items, components, or processes developed at private expense, identify both the deliverable technical data and each such items, component, or process. For computer software or computer software documentation identify the software or documentation.
- \*\* Generally, development at private expense, either exclusively or partially, is the only basis for asserting restrictions. For technical data, other than computer software documentation, development refers to development of the item, component, or process to which the data pertain. The Government's rights in computer software documentation generally may not be restricted. For computer software, development refers to the software. Indicate whether development was accomplished exclusively or partially at private expense. If development was not accomplished at private expense, or for computer software documentation, enter the specific basis for asserting restrictions.
- \*\*\* Enter asserted rights category (e.g., government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited, restricted, or government purpose rights under this or a prior contract, or specially negotiated licenses).
- \*\*\*\* Corporation, individual, or other person, as appropriate.
- \*\*\*\* Enter "none" when all data or software will be submitted without restrictions.

Date	
Printed Name and Title	
Signature	
	(End of identification and assertion)

- (e) An offeror's failure to submit, complete, or sign the notification and identification required by paragraph (d) of this provision with its offer may render the offer ineligible for award.
- (f) If the Offeror is awarded a contract, the assertions identified in paragraph (d) of this provision shall be listed in an attachment to that contract. Upon request by the Contracting Officer, the Offeror shall provide sufficient information to enable the Contracting Officer to evaluate any listed assertion.

### L-7 DFARS 252.227-7028 - TECHNICAL DATA OR COMPUTER SOFTWARE PREVIOUSLY DELIVERED TO THE GOVERNMENT (JUN 1995)

The Offeror shall attach to its offer an identification of all documents or other media incorporating technical data or computer software it intends to deliver under this contract with other than unlimited rights that are identical or substantially similar to documents or other media that the Offeror has produced for, delivered to, or is obligated to deliver to the Government under any contract or subcontract. The attachment shall identify -

- (a) The contract number under which the data or software were produced;
- (b) The contract number under which, and the name and address of the organization to whom, the data or software were most recently delivered or will be delivered; and
- (c) Any limitations on the Government's rights to use or disclose the data or software, including, when applicable, identification of the earliest date the limitations expire.

### L-8 GOVERNMENT-FURNISHED PROPERTY

No material, labor, or facilities will be furnished by the Government unless provided for in the solicitation.

### L-9 INQUIRIES CONCERNING THE RFP

Any questions concerning the RFP must be submitted in writing to the Contracting Officer at the location noted in blocks 7 and 9 of the Standard Form 33, "Solicitation, Offer and Award," no less than fifteen (15) days before closing. The Government will not consider questions received after this date. Offerors are cautioned against directing any questions concerning this RFP to technical personnel at the Naval Research Laboratory.

### L-10 INSTRUCTIONS FOR SUBMISSION AND INFORMATION REQUIRED TO EVALUATE PROPOSALS

- (1) Information for the technical/management proposal shall be placed in Volume I and be completely separate from the business proposal (Volume II).
- (2) Proposal Identification/Mailing The proposal should be packaged for delivery so as to permit safe and timely arrival at destination. The proposal package should be sent to the address shown in Block 7 of the RFP face page and marked:

Solicitation No. N00173-00-R-SE01 Closing Date: (As specified in Block 9, RFP face page) Attn: Code 3235

(3) Proposal Format and Length - No attempt is made to restrict the proposal format and style. However, the proposal should be written and organized so as to be compatible with the RFP, the Statement of Work, company's organization and accounting structure, and proposed cost estimate. Offerors are encouraged to use recycled paper and maximize the use of double sided copying when preparing responses to solicitations.

### L-11 VOLUME I - TECHNICAL/MANAGEMENT PROPOSAL

REQUIRED COPIES: 1 ORIGINAL AND 3 COPIES.

- (a) Include a matrix indicating proposed labor hours by skill category required to perform the statement of work. This matrix shall not contain labor rates or any other indication of price. The Contractor shall propose labor hours in accordance with the level of effort breakdown identified in Section H-3.
  - (b) The following information is required for evaluation of your technical/management:

### (1) Personnel Qualifications

The offeror shall provide evidence that it has, or has the ability to obtain, personnel with relevant experience in the scientific and technical areas described in Attachment (1) Statement of Work. These are highly specialized fields and personnel without the actual experience in these areas are not acceptable. Attachment (2) Personnel Qualifications sets forth the required qualifications. The offeror shall document the experience, education and other qualifications of all personnel proposed to accomplish the task areas of the Statement of Work. As a minimum, the offeror shall provide for each proposed individual, (i) name of proposed individual; (ii) proposed

labor category, coinciding with the labor categories listed in Section H-3.; (iii) resume, and (iv) status of current or ability to obtain a security clearance. Key personnel shall be identified as such. The proposal shall demonstrate the availability of sufficient key project professional and technical personnel by the prime contractor as well as any proposed subcontractor and consultants.

### (2) Past Performance Information

Offerors shall submit the following information as part of their proposal. (Offerors are encouraged to submit the information prior to other parts of the proposal to assist the government in reducing the length of the evaluation period.) List the last five contracts or subcontracts completed during the past three years for services similar in nature to this requirement. Include in the 5 any current contracts or subcontracts for similar services that were awarded at least one year prior to the date of this solicitation. Offerors that have no similar previous or current contracts should provide the requested information for proposed subcontractors that will perform major or critical aspects of the requirement or for the proposed project manager or key personnel responsible for major or critical aspects of the requirement.

- 1. Name of contracting organization.
- 2. Contract number
- 3. Contract type
- 4. Total contract value
- 5. Description of the contract work
- 6. Contracting officer and telephone number
- 7. Contracting officer's representative, program manager, or similar official and telephone number

Offerors shall contact the contracting organizations identified pursuant to paragraph (a) as soon as possible and request them to send past performance information on the identified contracts to the address in Block 7 of the face page of this solicitation. The past performance report which is available electronically in full text at <a href="http://heron.nrl.navy.mil/contracts/home.htm">http://heron.nrl.navy.mil/contracts/home.htm</a> is to be provided to the contracting organization for this purpose. If the contracting organization has already collected past performance information on the contract pursuant to FAR Subpart 42.15, the format used to collect the information may be used instead of the past performance report.

Offerors may include in their proposals specific information relating to problems encountered in performing the identified contracts and any corrective actions by the offeror. Offerors should not provide general information on their performance on the identified contracts as this will be obtained from the contracting organizations.

### (3) Corporate Management/Structure

The offeror shall provide a narrative description of the proposed management approach for accomplishing the tasks specified in the Statement of Work. The proposal should clearly demonstrate: (1) the corporate structure, the relationship between the organizations elements and their respective responsibilities that will participate in accomplishing the government's requirement. This includes: internal management communications; lines and the methods of maintaining close liaison with the COR; and methods both program and immediate work site supervision (2) any proposed subcontracts and extent of involvement in performance of this contract and a management plan detailing how each subcontractor will be integrated into the overall management approach to ensure contract objectives are satisfied (3) ability of management to respond to workload fluctuations in a timely

### SOLICITATION NUMBER: N00173-00-R-SE01 PAGE 25

manner (4) reporting systems available for monitoring qualitative and quantitative aspects of contract performance including financial monitoring and reporting (5) start-up plan to fully perform within 30 days of contract award.

The offeror shall also describe and document those resources which the firm will make available to this project, including, but not limited to, (a) financial resources, (b) research, development and production facilities and equipment and (c) any other technical or scientific resources offered to meet the Government's requirements as stated in Section C of this solicitation.

#### L-12 VOLUME II - BUSINESS PROPOSAL

REQUIRED COPIES: 1 ORIGINAL AND 3 COPIES

### (a) Cost Proposal

The offeror shall submit a business proposal that includes a cost proposal with supporting information for each cost element consistent with offeror's cost accounting system. The supporting breakdown should include such elements as materials, direct labor, indirect cost, and other costs such as travel/consultants/subcontractors, G&A, facilities capital cost of money, fee and any other cost elements. The offeror shall provide exhibits as necessary to substantiate the cost elements. Should rates be used in the proposal which are not DCAA approved, the offeror shall provide complete documentation and the rationale for their use at time of proposal submission.

### (b) Materials - For Evaluation Purposes Only

The offeror shall include a "Material" estimate of \$40,000.00 per year for materials, supplies and equipment to be procured in performance of this contract. This "Materials" estimate includes parts, components and supplies which are expected to be incorporated into end products or expended during performance and minor direct equipment expense.

### (c) <u>Travel - For Evaluation Purposes Only</u>

The offeror shall include a "Travel" estimate of \$20,000.00 per year for travel and subsistence involved in performance of this effort.

### L-13 MULTIPLE AWARDS

The Contracting Officer may make multiple awards resulting from this solicitation.

### SECTION M EVALUATION FACTORS FOR AWARD

#### M-1 EVALUATION

Award will be made to that offeror whose proposal is determined to be the best value to the Government, proposed cost and other factors considered. The Government reserves the right to make award to other than the low offeror. Although technical considerations are more important than the cost factor, the closer the technical scores of the various proposals are to one another, the more important the business considerations become. The Government anticipates awarding a contract without discussions, but reserves the right to conduct discussions if it is determined by the Contracting Officer to be necessary. Discussions may be conducted following evaluations only with those offerors determined to have a reasonable chance of award.

#### M-2 EVALUATION FACTORS FOR AWARD

Proposals will be evaluated in accordance with the following criteria. The technical factor is more important than the cost factor. The technical sub-factors are listed in descending order of importance.

#### M-2-1. TECHNICAL/MANAGEMENT

### (a) Personnel Qualifications

The proposals will be evaluated on the offeror's demonstrated ability to provide personnel with (i) the appropriate qualifications set forth in Attachment (2); (ii) actual relevant experience in the scientific, professional and technical areas set forth in Attachment (1) (these are highly specialized fields and personnel without actual experience as required in these areas will not be considered acceptable); and (iii) the ability to obtain a Secret clearance prior to commencing work.

### (b) Past Performance

Past performance will be evaluated on the basis of the quality of the work performed, timeliness of performance, cost control, and business relations. The evaluation will be based on the information provided pursuant to Section L and other sources if available. Offerors that have no relevant performance history or for which past performance information is not available will not be evaluated favorably or unfavorably on past performance. The government may begin proposal evaluation prior to receipt of past performance information. If, after completion of proposal evaluation except evaluation of past performance, the contracting officer determines that evaluation of past performance will not affect the outcome of competitive selection, the contracting officer may waive its evaluation in accordance with FAR 15.304(c)(3)(iii).

The proposal will be evaluated on the offeror's demonstrated description of the proposed management approach for accomplishing the tasks specified in the Statement of Work. The proposal should clearly demonstrate: (1) the corporate structure, the relationship between the organizations elements and their respective responsibilities that will participate in accomplishing the government's requirement. This includes: internal management communications; lines and the methods of maintaining close liaison with the COR; and methods both program and immediate work site supervision (2) any proposed subcontracts and extent of involvement in performance of this contract and a management plan detailing how each subcontractor will be integrated into the overall management approach to ensure contract objectives are satisfied (3) ability of management to respond to workload fluctuations in a timely manner (4) reporting systems available for monitoring qualitative and quantitative aspects of contract performance including financial monitoring and reporting (5) start-up plan to fully perform within 30 days of contract award.

### M-2-2 COST TO THE GOVERNMENT

Proposed estimated cost to the Government. The Government may adjust the proposed cost for purposes of evaluation based upon an evaluation of cost realism. Cost Realism means that the costs in an offeror's proposal are realistic for the work to be performed; reflect a clear understanding of the requirements; and are consistent with the various elements of the offeror's technical proposal. The cost realism evaluation includes an analysis of the adequacy of the hours, labor mix, and other direct costs to perform the work as proposed in the technical proposal as well as the proposed labor and indirect rates. It also includes evaluation of the likelihood that the risks inherent in the offeror's technical approach will result in higher actual costs than anticipated.

#### STATEMENT OF WORK

### **Electro-Optical Technology: Devices and Sensor Signal Processing**

### 1.0 Background

The Naval Research Laboratory (NRL) conducts research, development, and applications-oriented activities in the area of electro-optical devices and systems. This theoretical and experimental research involves discovering and understanding the basic principles and operation of electro-optical devices, materials and phenomena. This work statement describes research to discover and produce electro-optical devices and techniques which form the basis of key research projects at the Naval Research Laboratory, Washington D.C. Major areas include laboratory measurements and analysis of optical devices and systems, the investigation and use of nonlinear phenomena and laser systems, the characterization of electro-optical and semi-conductor materials, devices and sensors, and the development of advanced Navy electro-optical sensors and signal processing. This effort will be applied to Navy capabilities in the areas of optical and infrared countermeasures, detection signal processing studies, optical seeker studies, solid state laser development, and optical imager development.

### 2.0 Scope

The scope of this contract is to provide research and development expertise in areas of optical sciences including laboratory measurements, analysis of optical devices and systems, the investigation and use of non-linear phenomena and laser systems, the characterization of electro-optical and semi-conductor materials, devices and sensors, and the development of advanced Navy electro-optical sensors and signal processing. The conduct of this research and development effort shall be by the contractor over a five year period in laboratory spaces made available at the Naval Research Laboratory Main Site, Washington, DC and at field sites that are arranged by the Contracting Officer's Technical Representative. The contractor is required to possess a secret level office and to provide researchers with secret level clearances. Due to the need for quick response and close coordination between the contractor personnel and NRL, key and resource personnel must be able to travel between NRL and the contractor's facility within two hours.

The contracting Officer's Technical Representative shall provide the contractor with a more detailed schedule for performing the work after award of this contract; emphasis among tasks may be shifted in consultation between the COTR and the contractor on the basis of work results obtained and available funds. Significant changes will be directed by a contract modification. The work shall be accomplished over a five year period.

The contractor shall provide consumable supplies, electrical components to fabricate custom electronic boards, minor electronic assemblies, optical components, and commercial software necessary to complete the tasks. Any materials developed on this contract shall remain

at NRL and shall be the sole property of NRL. In addition, any incidental supplies or equipment purchased by the contractor in performing this work shall be the sole property of NRL. Travel and equipment supply purchases made on this contract in performing this work shall be approved by the Contracting Officer's Technical Representative (COTR), or otherwise designated representative, prior to the contractor beginning travel or executing purchase. Travel shall be reimbursed at rates specified by Joint Travel Regulations.

### 3. Tasking

### 3.1 First Year tasking

The contractor shall perform the tasks according to the following:

Design and execute simulated engagements of operational and experimental tactical missile scenarios to provide sets of realistic missile flyouts for missile warning sensor performance analysis in conjunction with planned field measurements. Utilize an in-depth knowledge of the missile systems, missile simulations and computer programs for sensor performance analysis to predict MAWS performance for proposed field measurement tests and develop the parameters which will most efficiently lead to validation of system performance. The contractor shall use UNIX, FORTRAN, C and XWindows tools to perform data analysis tasks as required.

Maintain an in-house Signature Database to access a data repository of field and simulated data files. This task performed by the contractor shall include responsibilities for data insertion, validation, auditing, report generation and system updates.

Develop algorithms to exploit the data taken by TARPS-CD reconnaissance sensors and provide data reduction for field measurements

Aid the team to develop, integrate, and test the functionality of the prototype SHARP Reconnaissance management system.

Aid the team to migrate realtime display station capability to PC NT platforms.

Investigate the complex microscopic interactions which govern excited state absorption in phthalocyanine and related materials for eye and sensor protection. Experimentally study the optical, electro-optical and nonlinear optical response of advanced materials and components under development at NRL.

Develop computer codes to theoretically model optically-pumped and diode semiconductor lasers emitting at wavelengths beyond 2 µm. Compile and analyze the results of experimental and theoretical work on the band structure parameters of III-V compound semiconductors and their ternary and quaternary alloys. Analyze the thermoelectric and transport properties of BiSb and Bi<sub>2</sub>Te<sub>3</sub> thin films and quantum wells, focusing on the accurate modeling of carrier statistics, mobility, and thermoelectric power.

Experimentally characterize the performance and operating characteristics of optically-pumped type-II antimonide mid-IR lasers that are under development at NRL. Determine

emission spectra, light-light characteristics, thresholds *vs.* temperature, pulsed output powers, and power conversion efficiencies. Measure field-dependent magneto-transport properties of Bibased compounds, alloys and superlattice for treatment with the Quantitative Mobility Spectrum Analysis (QMSA).

### 3.2 Second year tasking

The contractor shall perform the tasks according to the following:

Design and execute simulated engagements of operational tactical anti-air missiles and MAWS to identify performance boundary conditions for potential upgrades of emerging MAWS. The simulation of sensor performance by the contractor shall be extended to predict MAWS performance in post-burnout scenarios. A rigorous analysis shall be executed by the contractor based on extensive knowledge of the missile systems, missile flyout simulations and MAWS performance analysis software. In addition, the contractor shall use UNIX, FORTRAN, C and XWindows tools to perform analyses of available measurements from emerging MAWS. The contractor shall use government computers and government software such as DISAMS and ESAMS to simulate engagements of operational tactical anti-air missiles.

Develop algorithm to exploit the data taken by prototype and SHARP reconnaissance sensors and provide data reduction for field measurements

Aid the team to integrate, trouble-shoot, and flight test the prototype SHARP Reconnaissance management system.

Aid the team to provide network capability between realtime display and exploitation stations using PC NT platforms.

Perform picosecond experimental tests on selected NLO polymeric systems to characterize optical materials and devices of interest for applications such as high-speed 2-D optical processing, optical communications, and optical limiting for eye/sensor protection.

Optimize multi-layer designs for optically-pumped type-II antimonide semiconductor lasers emitting in the wavelength range of 3-100  $\mu$ m. Modify the finite-element software to represent more accurately the literature values of the band structure parameters and extend the 8-band model to 14 bands to increase the number of free parameters. Analyze performance of lead-salt optically and electrically pumped semiconductor lasers.

Experimentally characterize performance of mid-IR vertical-cavity surface-emitting lasers (VCSELs) designed at NRL and grown at NRL or elsewhere. Determine properties of lead salt double heterostructure and quantum well lasers, having edge-emitting and/or VCSEL geometry.

### 3.3 Third year tasking

The contractor shall perform the tasks according to the following:

Analyze the effectiveness of infrared jamming countermeasures on selected anti-air missiles using simulated missile engagements. Simulated engagements of operational and developmental tactical anti-air missile scenarios by the contractor shall be used to predict the performance and timelines of advanced IRCM systems. The contractor shall utilize knowledge of missile systems, missile simulations and jamming countermeasures to predict performance under scenarios specified by the COTR and to model engagements for field tests.

Use UNIX, FORTRAN, C and XWindows tools to perform analysis of MWS field test data as required. Use government software such as DISAMS and ESAMS and government computers to perform IRCM system analyses.

Develop algorithm to exploit the data taken by SHARP reconnaissance sensors and provide data reduction for field measurements

Address network image data flow for reducing dissemination time from image acquisition to targeting.

Develop techniques, hardware, and software for airborne cockpit image display and exploitation.

Investigate experimentally nonlinear transmission in photonic bandgap structures under development at NRL. Develop analytical techniques to understand critical materials properties, and design and implement new experimental approaches to fill critical data gaps and optimize materials/devices.

Optimize multi-layer designs for electrically-pumped type-II antimonide semiconductor lasers emitting in the wavelength range of 3-25  $\mu$ m. Analyze experimental light-light and light-current curves for mid-infrared lasers under development at NRL and identify the ways to improve the performance characteristics. Theoretically investigate negative luminescence phenomena in type-II quantum wells.

Characterize electrically-pumped type-II antimonide semiconductor lasers emitting in the mid-IR. Study *I-V* and light-current characteristics as well as emission spectra, output power, and slope efficiency, and assess ways to improve the performance. Experimentally study negative luminescence phenomena in type-II quantum wells.

### 3.4 Fourth Year tasking:

The contractor shall perform the tasks according to the following:

Support additional testing of emerging MWS systems. The responsibilities shall include predicting system performance with simulation, controlling incoming data from the field tests, and providing post-test performance verification using field test data.

Develop algorithm to exploit the data taken by SHARP reconnaissance sensors and provide data reduction for field measurements

Develop techniques and algorithms to utilize tactical reconnaissance imagery for precision targeting.

Refine techniques, hardware, and software for demonstration of airborne cockpit image display and exploitation.

Perform tests on the optical and nonlinear optical properties of selected organic materials to fill critical data gaps relevant to operation of optical limiters at high optical flux levels. Experimentally investigate multiple-photon absorption and subsequent excited-state absorption processes in selected organic materials.

Theoretically analyze and develop optimized designs for antimonide intersubband quantum cascade lasers. Achieve a better quantitative understanding and predictive capability of the lifetime- and efficiency-limiting mechanisms such as Auger recombination and intervalence absorption in mid-infrared and far-infrared laser structures.

Characterize performance of optically- and electrically-pumped antimonide intersubband quantum cascade lasers with enhanced phonon lifetimes. Experimentally investigate lifetime- and efficiency-limiting mechanisms such as Auger recombination and intervalence absorption in midinfrared and far-infrared laser structures.

### 3.5 Fifth year tasking

The contractor shall perform the tasks according to the following:

Transfer and distribute subset of the MWS Signature database as directed by NRL. The data is intended for use by potential MWS upgrade contractors.

Support the preparation of database and supporting documentation for other government users.

Prepare documentation for future reference and to facilitate post-archive use of the MWS data.

Refine techniques and algorithms to utilize tactical reconnaissance imagery for precision targeting to provide initial screening to targeting system capability.

Perform calculations of photonic device performance and design tradeoffs for promising organic nonlinear optical materials to be applied to optical communications, and optical limiting for eye/sensor protection. Develop new measurement techniques and experimentally validate device simulation models.

Investigate feasibility and develop optimized designs for Terahertz-frequency lasers based on interband and intersubband transitions in type-II quantum wells. Design single-mode mid-infrared vertical-cavity lasers for chemical sensing applications. Simulate the performance of optical-pumping injection cavity (OPIC) lasers with W active regions, in order to maximize the power conversion efficiency increase related to the etalon cavity at the pump wavelength.

Experimentally characterize Terahertz-frequency lasers based on optically-pumped interband and intersubband transitions in type-II quantum wells. Investigate power conversion efficiencies and cw output powers for optically-pumped type-II mid-IR lasers, and develop strategies for optimization. Characterize the performance of optical-pumping injection cavity (OPIC) lasers with W active regions, to assess improvements in power conversion efficiencies.

#### 4.0 Deliverables:

The contractor shall provide the following:

The contractor shall provide reports on each distinct technical area. The technical reports shall be in a format and of a quality suitable for publication in an appropriate forum. In addition, a summary report shall be submitted for each task at the completion of each quarter. These summary reports may be included in a yearly report which shall be submitted at the end of each year. The yearly reports shall be a brief summary of technical accomplishments, problems and plans. It is intended that the primary reporting of the technical work shall be in the individual reports on each technical effort within each task. The contractor shall provide a final report which shall be a summary of the accomplishments of the program, including a listing of the individual technical reports submitted. The technical details shall be contained in the detailed technical reports for each task, and not in the final report.

### 4.1 Quarterly progress reports:

The quarterly reports must be a brief summary of technical accomplishments, problems and plans, and shall be submitted at the end of each quarter. It must include the technical reports generated within each task.

### **4.2 Monthly Cost reports:**

The contractor shall submit three copies of monthly cost reports, within fifteen days of the close of each monthly reporting period, to the COTR and to NRL administrative personnel. This cost report must itemize all labor, material and travel expenditures for the month on the contract. It must also summarize the total expenditures, the status of funding and projected need for funding.

### 4.3 Final report

The contractor shall submit a final technical report to the COTR within sixty days of completion of this contract. This report must include a comprehensive interpretation of all work results achieved on this contract.

#### 5.0 Travel & Material cost:

The government has estimated the total cost of travel to be \$20,000.00 per year and material to be \$40,000 per year. The offeror shall include the costs shown above in their cost proposals.

### TRAVEL Examples:

- 2 trips: 2 people 2 days each -NRL to PAX
- 2 trips: 1 person 1 week each Contractor to California for Conference
- 2 trips: 2 people 1 week each Contractor to Boston for Conference.
- 2 trips: 2 people 1 week each Contractor to Atlanta for Conference
- 4 trips: 2 people 1 weeks (or 4 trips 2 people 1 week)from Contractor to meeting in California
- 4 trips: 2 people 1 weeks (or 4 trips 2 people 1 week) from Contractor to meeting in Ohio

Attachment (2)

### **Personnel qualifications**

The key personnel in the contract shall be Program Manager, Senior Programmer Analyst, Physicist/Chemist Optical Materials, Optical Physicist, and Physicist/Laser Devices

**Position:** Program Manager

<u>Summary Description:</u> This senior professional position requires primarily the application of knowledge of science and business management techniques to effectively manage the research efforts. The program manager is directly responsible for accomplishing the overall contract objectives. He exercises centralized authority to direct and control resources such as funds, personnel. priorities, and schedules. A high degree of business judgement and management is required to anticipate future requirements, coordinate the work of multiple researchers, and provide guidelines.

<u>Qualifications:</u> B.S. in Engineering or physics and advanced degree or equivalent experience in business administration. Minimum of five years experience in managing research and development programs for the government. Documented experience in managing the work of highly skilled researchers in the several diverse areas required in the statement of work. Good written and communications skills for developing technical briefings and reports as demonstrated by previous reports on progress generated by the proposed manager under previous contracts.

**Position:** Senior Programmer Analyst, Missile Simulation and Signature Database

Summary Description: The candidate shall participate in analyses of missile approach warning system (MAWS) performance, predict missile flyouts for experimental and operational scenarios, and maintain a missile signature database that supports tactical MAWS programs. This analyst shall verify the performance of current MAWS and predict the performance of system upgrades. In addition, this position requires the analyst to perform day-to-day maintenance tasks on a missile warning signature database to include data insertion and validation, report generation, audits and data integrity checks. The responsibilities shall also include analyzing tactical missile scenarios, determining simulation inputs, reviewing technical documents on missile capabilities, and writing applications programs to extract metrics from simulation results.

Qualifications: M.S. or equivalent in Computer Science with a minimum five years experience in missile warning system (MWS) simulation, scientific programming and data base management. Specialized experience in the analyses of MWS performance, prediction of missile flyouts for experimental and operational scenarios, and maintenance of MWS signature database. Minimum two years experience programming with tactical missile simulations including DISAMS and ESAMS. Knowledge of UNIX, FORTRAN, and C. Familiarity with XWindows, MSDOS, and Windows NT. An in-depth knowledge of formats and procedures for the AN/AAR-47 MWS database and related algorithm signature simulation and performance prediction is required. Knowledge of leading approaches to missile approach warning is required.

Attachment (2)

**Position:** Physicist/Chemist, Optical materials

<u>Summary Description:</u> The scientist filling this position shall conduct investigations on the nonlinear optical and electro-optical properties of materials. He/she develops and employs sophisticated experimental techniques in nonlinear optics and spectroscopy, studies laser interactions in materials and optical components, and performs research in electro-optical device technology. This scientist is expected to conduct this research on an independent basis, interpreting results, utilizing professional knowledge and judgement, generating new concepts for further exploration, and reporting on significant developments in scientific journals and at conferences.

This scientist shall perform research on nonlinear optical processes in organic materials. Highly conjugated metal-coordinated molecular systems, metal nanoclusters in dielectric media, phthalocyanines and related compounds, and liquid crystals are investigated. This scientist must possess established expertise in picosecond nonlinear spectroscopy, optical transmission and propagation in nonlinear media, four-wave mixing techniques, and electro-optical processes in ferroelectric and electroclinic liquid crystals. Time-resolved degenerate four-wave mixing, nonlinear transmission, transient absorption, z-scan, and electro-optic effect measurements are performed to identify dominant mechanisms and characterize the change in refractive index due to electrical and optical excitation. Third-order nonlinear optical processes involving excited states, e.g., reverse saturable absorption, are investigated and characterized. Military and commercial applications of these materials for optical switches and modulators in telecommunications, 2-D spatial light modulators for high data rate optical signal and image processing, and optical limiters for eye and sensor protection are pursued.

Qualifications: A Ph.D. or equivalent in physics or physical chemistry is required, with extensive experimental and theoretical expertise in the physics and chemistry of advanced optical materials relevant to optical limiters for eye and sensor protection, liquid crystal spatial light modulators, and organic photonic devices for military and commercial applications. Specialized experience is required in: nonlinear optical processes in organic materials, highly conjugated metal-coordinated molecular systems, metal nanoclusters in dielectric media, phthalocyanines and related compounds, excited-state third-order nonlinear optical processes (e.g., reverse saturable absorption), polymerization of organic systems and thin film deposition of conjugated organic systems such as fullerenes and phthalocyanines, and in electro-optical processes in ferroelectric and electroclinic liquid crystals. The scientist filling this position will be expected to develop new sophisticated experimental techniques in nonlinear optics, spectroscopy, laser interactions in materials, and in electro-optical device research. Demonstrated expertise is required in picosecond nonlinear spectroscopy, optical transmission and propagation in nonlinear media, time-resolved four-wave mixing techniques, transient absorption, z-scan, and phase retardation measurements.

Attachment (2)

**Position:** Optical physicist

<u>Summary Description:</u> This position provide theoretical and experimental support to conduct investigations on new optical and electronic materials and photonic device technologies for critical Navy programs. The tasks to be performed will require the services of a Ph. D physicist with extensive expertise in the physics of advanced optical and electronic materials relevant to semiconductor infrared lasers, thermoelectric coolers, and other optical and electronic devices.

The scientist filling this position will conduct investigations into the physics of optical materials with applications to novel photonic devices and mid-IR semiconductor lasers. Responsibilities include the development of simulation codes employed to model the interaction of light with semiconductor materials and the use of these simulation tools in the theoretical design and performance evaluation of advanced optoelectronic devices. The incumbent is expected to conduct this research on an independent basis, interpreting results, utilizing professional knowledge and judgment, generating new concepts for further exploration, and reporting on significant developments in scientific journals and at conferences.

The incumbent will be expected to perform research on infrared semiconductor lasers, and must possess established expertise in the physics of advanced optoelectronic materials relevant to the generation of mid-infrared radiation by laser operation or frequency mixing, optical and electro-optical modulators, and other photonic devices. Military and commercial applications of these materials for directed infrared countermeasures (DIRCM), spectroscopic applications, and chemical sensing should be pursued. The incumbent must possess expertise in the construction and implementation of detailed physical models of semiconductor materials, in particular, carrier transport and light generation in diode lasers based on electronic and optical quantum confinement, and must have demonstrated experience with UNIX, Fortran and C programming.

The incumbent is required to: investigate laser, electro-optical, and nonlinear optical processes in semiconductor quantum wells; construct detailed models of mid-infrared lasers, frequency mixers, modulators, and optical limiters; develop computer code to render these physical models; perform simulations of edge-emitting and surface-emitting type-II quantum-well and interband cascade lasers and correlate the theoretical predictions with the results of experimental investigations.

Qualifications: Ph. D. or equivalent experience in physics. Specialized experience in the design, implementation, and characterization of optical, electronic, and infrared laser materials using the techniques of linear spectroscopy, photoluminescence, electroluminescence, and measurements of their thresholds, efficiencies, Auger coefficients, internal losses, and thermal properties. Experience in the design and implementation coupling geometries and surface coatings to increase the performance of laser devices. Experience in the athermal annealing of ion-implanted silicon wafers, including the design of laser shockwave coupling geometries and characterization of the annealing efficiency as a function of coupling geometry, implanted-ion species type and density, laser power, and pulse duration, using the techniques of spatially-resolved 4-point resistivity measurements and magneto-transport characterization of the mobility of the activated carriers. The incumbent must have demonstrated ability as a mature, competent, and productive researcher over an extensive period of time. His/her work in the field must be of such significance and competence as to have established him/her as an authority in electronic and optical processes in semiconductors and their applications to laser and materials characterization.

Attachment (2)

**Position:** Physicist, laser devices

<u>Summary Description:</u> Experimental and theoretical support is needed to conduct investigations on new optical and electronic materials and photonic device technologies for critical Navy programs. The tasks include investigations of the physics of advanced optical and electronic materials relevant to semiconductor infrared lasers, and the athermal annealing of ion-implanted semiconductor wafers.

The scientist filling this position will conduct investigations on the linear and nonlinear optical, electronic, and electro-optic properties of materials. He/she develops and employs sophisticated techniques in the design, implementation, and experimental characterization of these materials, and performs research in electro-optical device technology. The incumbent is expected to conduct this research on an independent basis, interpreting results, utilizing professional knowledge and judgement, generating new concepts for further exploration, and reporting on significant developments in scientific journals and at conferences.

The incumbent will perform research on infrared semiconductor lasers. The incumbent must possess established expertise in the design and implementation of laser samples. He/she must characterize these samples through linear spectroscopy, photoluminescence, electroluminescence, and measurements of the thresholds, conversion efficiencies, Auger coefficients, internal losses, and thermal properties of these materials. The incumbent must design and implement coupling geometries and surface coatings to increase the performance of these devices. Military and commercial applications of these materials for directed infrared countermeasures (DIRCM), spectroscopic applications, and chemical sensing are pursued. The incumbent will also perform research on the athermal annealing of ion-implanted silicon wafers. He/she must design and characterize the efficiency of laser shockwave coupling geometries and annealing efficiency as functions of implanted-ion species type and density, laser power, and pulse duration. Characterization techniques include 4-point probe measurements of the spatial resistivity pattern and magneto-transport measurements to determine the mobility of the activated carriers. Military and commercial applications of these materials for next-generation silicon wafer processing technology are pursued. The incumbent must have expertise in the operation of Nd:YAG and Ho:YAG solid state lasers, infrared diode laser arrays, Nd:glass MOPA lasers, and the computerized acquisition of data.

Qualifications: Ph. D. or equivalent experience in physics. Specialized experience in the design, implementation, and characterization of optical, electronic, and infrared laser materials using the techniques of linear spectroscopy, photoluminescence, electroluminescence, and measurements of their thresholds, efficiencies, Auger coefficients, internal losses, and thermal properties. Experience in the design and implementation coupling geometries and surface coatings to increase the performance of laser devices. Experience in the athermal annealing of ion-implanted silicon wafers, including the design of laser shockwave coupling geometries and characterization of the annealing efficiency as a function of coupling geometry, implanted-ion species type and density, laser power, and pulse duration, using the techniques of spatially-resolved 4-point resistivity measurements and magneto-transport characterization of the mobility of the activated carriers. The incumbent must have demonstrated ability as a mature, competent, and productive researcher over an extensive period of time. His/her work in the field must be of such significance and competence as to have established him/her as an authority in electronic and optical characterization techniques and their applications to laser and materials characterization.

Attachment (2)

**Position:** Electrical Engineer/Computer Scientist

**Summary Description:** A specialist for work involving image compression, error correction coding, and airborne digital data transmission, ground station reception, display, and exploitation of digital imagery. The responsibilities include design, development, and integration of high speed components and software for PCI and VME-based boards to be used in communication and image acquisition/signal processing. Programming and hardware interfacing at all levels is required including C/C++, embedded systems, and GUI to be applied to real-time airborne and ground-based systems.

**Qualifications:** Experience in image/signal processing, software programming, graphical user interfaces, image compression, digital communications, and error-control coding is desired.

**Position:** Electrical Engineer/Physicist: signal processing

<u>Summary Description:</u> Performs work involving development and integration of real-time airborne control systems for state-of-the-art reconnaissance sensor applications. The responsibilities include real-time software programming and integration of commercial off the shelf and custom-built processing hardware. This work involves system design and development, integration, trouble-shooting, and field testing and could include development of additional custom hardware and software interface simulators for specific reconnaissance subsystems.

**Qualifications:** Experience in real-time software programming (VxWorks, C/C++), digital hardware integration and board design, image processing, interface channels and buses (VME, 422, 1553), and graphical user interfaces is desired.

### **CONTRACT DATA REQUIREMENTS LIST**

(2 Data Items)

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 220 hours par response, including the time for reviewing instructions, searching existing date sources, gathering and maintaining the date needed, and consisting and reviewing the collection of information. Send comments regarding this burden estimate or any other espect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Resoluted Services, Directorate for information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Preject (0704-0188), Washington, DC 20503. Please DD NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. Ested in Block E.

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### **CONTRACT DATA REQUIREMENTS LIST**

(2 Data Items)

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to everage 220 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arington, VA 22020-4302, and to the Office of Management and Budget, Paperment Reduction Project (0704-0188), Washington, DC 20503. Please 00 NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE	ITEM NO.	B. EXHIBIT	··	C. CATEGORY:		<del></del>		-		ľ		
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### **CONTRACT DATA REQUIREMENTS LIST**

(1 Data Item)

Form Approved
OMB No. 0704-0188

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## DEPARTMENT OF DEFENSE CONTRACT SECURITY CLASSIFICATION SPECIFICATION

(The requirements of the DoD Industrial Security Manual apply to all security aspects of this effort.)

1. CLEARANCE AND SAFEGUARDING	SER:	054-99
a. FACILITY CLEARANCE REQUIRED		
SECRET	_	
b. LEVEL OF SAFEGUARDING REQUIRED		

SECRET

2 TI	HIS SPECIFICATION IS FOR: (X and complete as applied	able)	3.	. TH	IS SPECIFICATION IS: (X an	nd complete as applicable)			
2. !!	a. PRIME CONTRACT NUMBER				a. ORIGINAL (Complete date in	all cares)	Date (YYMMDO	))	
			1	X	a. ORIGINAL (Complete date in	all Cases)	990927		
	b. SUBCONTRACT NUMBER				b. REVISED (Supersedes all previous specs)	ision No.	Date (YYMMD0	))	
	C SOLICITATION OR OTHER NUMBER Due D	ate (YYMMDO)					Date (YYMMDD	))	
X	N00173-00-R-SE01		Ī		c. FINAL (Complete Item 5 in a	all cases)			
	THIS A FOLLOW-ON CONTRACT? YES	X NC	). If Yes, co	molet	e the following:				
	assified material received or generated under				(Preceding Contract Number) is t	transferred to this follow-on	contract.		
5. 19	THIS A FINAL DD FORM 254? YES	X NO	). If Yes, co	mplet	e the following:				
	response to the contractor's request dated	, reten	ition of the ic	dentif	led classified material is authorized	for the period of			_
	OUTDACTOR COLLEGE COMMISSION COLLEGE	(CACE) Code)				· · · · · · · · · · · · · · · · · · ·			
	ONTRACTOR (Include Commercial and Government Entity AME, ADDRESS, AND ZIP CODE	(CAGE) COGE)	b. CAGE	CODE	c. COGNIZANT SECURITY O	FFICE (Name, Address, and Z	(ip Code)		
F	OR RFP PURPOSES ONLY, NOT VALID	D FOR ACT	UCAL (	CON	TRACT AWARD				
7. S	UBCONTRACTOR								
a. N	AME, ADDRESS, AND ZIP CODE		b. CAGE	CODE	c. COGNIZANT SECURITY OF	FFICE (Name, Address, and Z	(ip Code)		
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8. 4	CTUAL PERFORMANCE		<u></u>						
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9. 0	ENERAL IDENTIFICATION OF THIS PROCUREME	NT	<u> </u>	-		· · · · · · · · · · · · · · · · · · ·			
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	THIS CONTRACT WILL REQUIRE ACCESS TO:	YES NO			RMING THIS CONTRACT,			5	NO
_	COMMUNICATIONS SECURITY (COMSEC) INFORMATION	X			SS TO CLASSIFIED INFORMATION A A GOVERNMENT ACTIVITY	OHET AT ANOTHER CONTRA	CIURS	$\bot$	X
_	RESTRICTED DATA	X			ASSIFIED DOCUMENTS ONLY				X
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┝	NTELLIGENCE INFORMATION:				ERVICES ONLY				X
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_	2) Non-SQ	Х	g. BE AU CENTE	R (DT	IZED TO USE THE SERVICES OF DI IC) OR OTHER SECONDARY DISTRI	BUTION CENTER	TION		X
	PECIAL ACCESS INFORMATION	X	h. REQUI	RE' A	COMSEC ACCOUNT			$\Box \Gamma$	X
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_	OR OFFICIAL USE ONLY INFORMATION	X	I. OTHER	(Spe	ufy)	•		$\top$	
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Security Manual or unless it has been approved for public rele	rey personing to this contract sign not be received for public release by appropriate U.S. Government authority. Proposed public rele	reses shall be submitted for approval prior to release
Direct A Through (Specify):		,
Commanding Officer, Naval Research	Laboratory, Washington, DC 20375-53	320, Code 5636.
" In the case of non-DoD User Agencies, requests for disclosure sha		
assigned to any information or material furnished or generated un decision, the information involved shall be handled and protected	needed for this classified effort is identified below. If any difficulty is einhe contractor is authorized and encouraged to provide recommended cloder this contract; and to submit any questions for interpretation of this at the highest level of classification assigned or recommended. (Fill in a stracts referenced herein. Add additional pages as needed to provide co	hanges: to challenge the guidance or the classification guidance to the official identified below. Pending final a sppropriate for the classified effort. Attach, or
statement of work. However, prior to a a SECRET facility clearance, SECRE	ot required for the purpose of submitting ward of contract, the successful contract ET storage capabilities, and personnel as surate with level of access required for p	or will be required to have vailable with DoD granted
14 ADDITIONAL SECTIONAL DECLINERS OF THE PROPERTY OF THE PROPE		
pertinent contractual dauses in the contract document itself, or pr a copy of the requirements to the cognizant security office. Use Its	ents, in addition to ISM requirements, are established for this contract. ( ovide an appropriate statement which identifies the additional requirer rm 13 if additional space is needed.)	If Yes, identify the hents. Provide
15. INSPECTIONS. Elements of this contract are outside the in areas or elements carved out and the activity responsible for inspe	spection responsibility of the cognizant security office. (If Yes, explai ctions. Use Item 13 if additional space is needed.)	n and identify specific Yes X No
16. CERTIFICATION AND SIGNATURE. Security requirinformation to be released or generated under	ements stated herein are complete and adequate f this classified effort. All questions shall be referred	or safeguarding the classified
a. TYPED NAME OF CERTIFYING OFFICIAL	b. TITLE	c. TELEPHONE (Include Area Code)
TINA SMALLWOOD	Contracting Officer, Security	(202)767-2240/2521
d. Address (Include Zip Code) Naval Research Laboratory	17. REQUIRED DISTRIBUTION	ON
4555 Overlook Ave., SW	b. SUBCONTRACTOR	
Washington, DC 20375-5320 e. SIGNATURE		OFFICE FOR PRIME AND SUBCONTRACTOR
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